8-3: Arithmetic Series

Warm-up: 1. Find the sum of the first 100 terms of the arithmetic sequence $3, 7, 11, \ldots$

2. Find the sum of the first 101 terms of the same sequence.

Series:

Infinite Series:

Finite Series:

Arithmetic Series:

Example 1: Evaluate.

a. $\sum_{n=1}^{8}\left(n^2-1\right)$

b. $\sum_{n=1}^{8}\left(n^2\right)-1$

Theorem:

Example 2: A packer had to fill 100 boxes identically with machine tools. The shipper filled the first box in 13 minutes, but got faster by the same amount each time as time went on. If he filled the last box in 8 minutes, what was the total time that it took to fill the 100 boxes?

Example 3: A new business decides to rank its 9 employees by how well they work and pay them amounts that are in arithmetic sequence with a constant difference of $500 a year. If the total amount paid the employees is to be $250,000, what will the employees make per year?

Homework:

"You're alive. Do something. The directive in life, the moral imperative was so uncomplicated. It could be expressed in single words, not complete sentences. It sounded like this: Look. Listen. Choose. Act." - Barbara Hall